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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/676,186   | 09/30/2003  | Masanori Minamio     | 10873.1312US01      | 7097             |
| 7590   | 10/06/2006  |                      |                     | EXAMINER         |
| Hamre Schumann Mueller & Larson P C<br>P O Box 2902-0902<br>Minneapolis, MN 55402-0903 |             |                      | ZARNEKE, DAVID A    |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2891                |                  |

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                              |                     |  |
|------------------------------|------------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b>       | <b>Applicant(s)</b> |  |
|                              | 10/676,186                   | MINAMIO ET AL.      |  |
|                              | Examiner<br>David A. Zarneke | Art Unit<br>2891    |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 June 2005.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____ .                        |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :4/19/06; 3/9/06; 8/19/05; 1/12/04.

## DETAILED ACTION

### ***Claim Objections***

Claim 1 is objected to because of the following informalities:

Claim 1

- 1) line 4, the phrase “a rib with provided on” is improper English.
- 2) line 8, insert “the” before “inside” and “outside”.
- 3) line 12, “wherein includes” is improper English. For examination purposes, it was assumed that the phrase reads “wherein the wiring includes”.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, and 6 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kinsman et al., US Patent Application Publication 2004/0038442.

Kinsman (Figure 12) teaches a solid-state imaging device, comprising:  
a substrate [2];

an imaging element [52] that is mounted on the substrate;  
a rib [26] provided on the substrate so as to surround the imaging element;  
a transparent plate [62] that is fixed to a top face of the rib;  
a wiring [8] for connecting electrically inside of a package with outside of the package, the package being comprised of the substrate, the rib and the transparent plate; and  
a thin metal wire [60] provided for connecting an electrode of the imaging element with the wiring,

wherein the wiring includes: an internal electrode [8] disposed on a surface of the substrate; an external electrode ([72] & specification paragraph [0036]) the disposed on a rear surface of the substrate; and an end face electrode ([72] & specification paragraph [0036]) disposed on a side face of the substrate, which connects the internal electrode and the external electrode, and

the side face of the substrate, an outer side face of the rib and a side face of the transparent plate, form a substantially coplanar surface (Figure 12).

Regarding claim 2, Kinsman (Figures 10 and 11) teaches the end face of the substrate, the side face of the rib and the end face of the transparent plate are in a plane formed by cutting them sequentially in a single operation.

With respect to claim 6, Kinsman (Figure 12) teaches an internal side face of the rib has a flat surface, and an external side face and the internal side face of the rib are perpendicular to the face of the substrate.

Claims 12-15 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kinsman et al., US Patent Application Publication 2004/0038442.

Kinsman (Figure 13) teaches a method for producing the solid-state imaging device, comprising the steps of:

forming a top-side conductive layer [8] and a bottom-side conductive layer [78] on a top face and a bottom face of a base material [2], and forming a perforation conductive layer [76] that penetrates through the base material so as to connect the top-side conductive layer and the bottom-side conductive layer;

providing a rib formation member [26] for forming the rib on the base material at a boundary between regions, each of which is for fixing a solid-state imaging element [52], so that the rib formation member is positioned above the perforation conductive layer;

fixing the imaging element [52] in each region surrounded by the rib formation member and connecting the electrode of the imaging element and the top-side conductive layer by means of the thin metal wire [60];

fixing the transparent plate [62] to a top end face of the rib formation member; and

cutting the base material, the rib formation member and the transparent plate sequentially in a single operation in a direction perpendicular to the base material and in a direction that divides a width in a planar shape of the rib formation member into halves so as to separate the plurality of solid-state imaging devices into the respective pieces (Figures 10 & 11).

Regarding claim 13, Kinsman teaches the rib formation member is formed in a lattice form (Figure 6).

With respect to claims 14 and 15, Kinsman teaches the rib formation member is formed on the base material by resin forming (claim 14), wherein the resin forming is carried out by molding using molds (claim 15) (Figures 3A-C & specification paragraph [0026]).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3-5, 8-11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman et al., US Patent Application Publication 2004/0038442, as applied to claim 1 above.

Regarding claim 3, while Kinsman fails to teach an internal side face of the rib has a tilt such that the internal side face spreads outwardly from a face of the substrate toward the transparent plate, is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)). Tilted side surfaces are commonly used to allow the imaging device a greater area to receive or emit light.

With respect to claim 4, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the angle of the tilt through routine experimentation (MPEP 2144.05).

As to claim 5, while Kinsman fails to teach it, the use of an orange peel skin pattern or a grained pattern is formed on an internal side face of the rib is/ are an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

In re claim 8, while Kinsman fails to teach a surface of the external electrode forms a substantially coplanar surface with the rear surface of the substrate, the use of an insulating layer upon the bottom surface of the substrate that is coplanar with the external electrode is commonly known to skilled artisans. The use of conventional materials to perform their known functions in a conventional process is obvious (MPEP 2144.07). Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

Regarding claim 9, while Kinsman fails to teach a surface of the external electrode is recessed relative to the rear surface of the substrate, the use of an insulating layer upon the bottom surface of the external electrode that is recessed to the substrate is commonly known to skilled artisans. The use of conventional materials to perform their known functions in a conventional process is obvious (MPEP 2144.07). Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

With respect to claim 10, while Kinsman fails to teach an insulation film is formed on the rear face of the substrate, and the insulation film and the external electrode are arranged so as not to overlap each other, a non-overlapping insulation film is commonly known to skilled artisans. The use of conventional materials to perform their known functions in a conventional process is obvious (MPEP 2144.07). Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

As to claim 11, while Kinsman fails to teach an insulation film is formed on the rear face of the substrate, and a peripheral portion of the external electrode and the insulation film are arranged so as to overlap each other, an overlapping insulation film is commonly known to skilled artisans. The use of conventional materials to perform their known functions in a conventional process is obvious (MPEP 2144.07). Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

In re claim 17, though it is unclear if Kinsman (figure 12) specifically teaches the external electrode to be at apposition corresponding to the internal electrode, it is an obvious matter of design choice. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman et al., US Patent Application Publication 2004/0038442, as applied to claim 1 above, and further in view of Wu, US Patent 5,811,799.

Kinsman fails to teach the end face electrode is disposed in a recess that is formed on the end face of the substrate, and a surface of the end face electrode forms a substantially coplanar face with the end face of the substrate, or is recessed relative to the end face of the substrate.

Wu (Figures 4A, 4B, 5A & 5B) teaches the end face electrode [23] is disposed in a recess that is formed on the end face of the substrate, and a surface of the end face

electrode forms a substantially coplanar face with the end face of the substrate, or is recessed relative to the end face of the substrate.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the end face electrode of Wu in the invention of Kinsman because an end face electrode of this type has no protruding parts that can be scraped off during handling.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kinsman et al., US Patent Application Publication 2004/0038442, as applied to claim 12 above.

While Kinsman fails to teach using a sheet for suppressing generation of the resin flash is interposed between a mold for the resin molding and the base material, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a sheet for suppressing generation of the resin flash in the invention of Kinsman because a resin flash suppression sheet is an obvious matter of design choice. They are known to protect the substrate that is being resin molded. Design choices and changes of size are generally recognized as being within the level of ordinary skill in the art (MPEP 2144.04(I), (IVA) & (IVB)).

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4 of copending Application No. 10/970,533. Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 1, 2 and 8 of the copending application combines to cover all the limitations of this application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

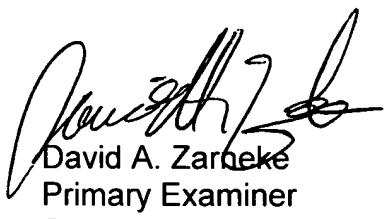
### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited but not relied upon teach the state of the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (571)-272-1937. The examiner can normally be reached on M-Th 7:30 AM-6 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Baumeister can be reached on (571)-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



David A. Zarnke  
Primary Examiner  
September 27, 2006